

(3)

Dados

$$T = ?$$

$$F = 0 \text{ NW}$$

$$d = 1.200 \text{ m}$$

$$= 12 \text{ MT}$$

$$T = F \cdot D$$

$$T = 0 \cdot 12 \text{ MT}$$

$$T = 06 \text{ joules}$$

$$M = 6000 \text{ kg}$$

$$d = 150 \text{ MT}$$

$$\alpha = 20^\circ$$

$$\mu = 0.65$$

$$g = 9.81 \text{ m/s}^2$$

(4)

$$T \cdot \sin \alpha = P$$

$$P = F = G = T$$

$$P = M \cdot g = T \cdot \sin \alpha$$

$$\underline{5,708,850}$$

5

Datos

$$F = 12 \text{ NW}$$

$$d = 7 \text{ m}$$

$$T = ?$$

$$T = F \cdot d$$

$$T = (12) (7)$$

$$T = 84 \text{ j}$$



6

Datos

$$M = 50 \text{ kg}$$

$$d = 8 \text{ m}$$

$$T = ? = 3924$$

$$T_{po} = 490.5 \text{ j}$$

$$T = F \cdot d$$

$$F = P = (M \cdot G)$$

$$(50 \text{ kg}) (9.81)$$

$$T = (490.5) (8) = 3924 \text{ j}$$

$$\underline{3924 \text{ j}}$$

7

$$T = ? \quad 14.71$$

$$M = 10 \text{ Dm}^3 \quad (0.5 \text{ kg})$$

$$D = 8 \text{ MT}$$

$$T = F \cdot D$$

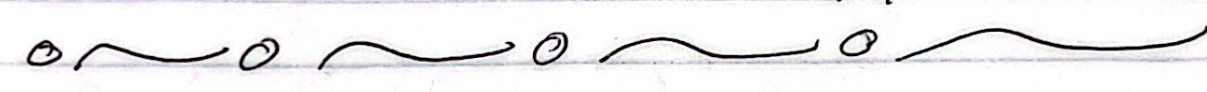
$$T = (4.90) (8 \text{ MT})$$

$$F = P = M \cdot C_1$$

$$14.71$$

$$(0.5) (9.81)$$

$$F = 4.90$$



8

$$T = ?$$

$$T = (M)(G)(d)$$

$$M = 20 \text{ T} = 20,000 \text{ kg}$$

$$F = 20,000 \text{ N}$$

$$V = (0.6 \text{ km}) (1 \text{ hr}) (1000) = 9$$

$$D = 36,000 \text{ MT}$$

$$I = 3600 \text{ kg}$$

$$T = (20,000) (9.81) (36,000)$$

$$T_1 = 7063,200,000$$

$$T_2 = 7063,200$$

$$T_3 = 1,962,000$$

9 =

M = 6 kg

F = 1000 Nw

H = 0.78 m

T₁ = 3000 j

T₂ = 478.2378 j

TT = 0.478.2075 (j m) (op. N) = T

10 T₁ = 200 j; T₂ = 0; T₃ = -120 j

11

M = 1500 kg

d = 1500 cm = 15 m

t = 2 min = 120 sec

g = 9.81 m/s²

P = T / t

P = (1500 kg) (9.81 m/s²) (15 m) / 120 sec

P = 1809.075 W

a) w

D = kg

C.V.U

1809.075 W = 1 / 1000 kW

P = 1.809 kW

= 0.44 C.V

1.809 kW * 1.05 / 1 = 1.899 kW

12

$$v = 50 \text{ km/h}$$

$$P = 40 \text{ G.V}$$

F?

$$v = \frac{d}{t} \Rightarrow d = 50 \text{ km} = 50000 \text{ m}$$

$$t = 1 \text{ h} = 3600 \text{ s}$$

$$P = \frac{T}{t}$$

$$P = 40 \text{ G.V}$$

$$40 \text{ G.V} \cdot \frac{1}{1.23} \text{ kW}$$

$$1.23 \text{ G.V}$$

$$P \cdot t = T$$

$$T = F \cdot d$$

$$P \cdot t = F \cdot d$$

$$\frac{P \cdot t}{d} = F$$

$$00,07 \text{ kW} \cdot \frac{1000}{1} \text{ W}$$

$$P = 21680 \text{ W}$$

$$F = \frac{(21680 \text{ W})(3600 \text{ s})}{50000 \text{ m}}$$

$$F = 21680 \text{ N}$$

13

$$m = 250 \text{ kg}$$

$$d = 18 \text{ m}$$

$$t = 40 \text{ seg}$$

$$g = 9.81 \text{ m/s}^2$$

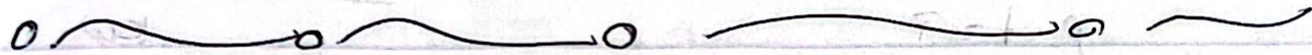
$$P = \frac{m \cdot g \cdot d}{T}$$

$$P = \frac{(250 \text{ kg}) (9.81 \text{ m/s}^2) (18 \text{ m})}{40 \text{ seg}}$$

$$wt = 1545.075$$

$$kw = 1545.075$$

H.D =



14

$$M = 25,000 \text{ kg}$$

$$d = 1.6 \text{ km}$$

$$t = 5 \text{ min}$$

P - CV ?

$$F = M \cdot g$$

$$F = (25,000) (9.81)$$

$$F = 245,250$$

$$1,008,000 \text{ w} = 1,008 \text{ kw} = 1,709.64 \text{ CV}$$

15

P = 20 CV

20 ÷ 1.00 = 15 kW W = 15,000

U = 50 n/s

15,000 ÷ 50 = 300

d = 50 m/s

M = 15,000 ÷ 9.81 = 1,529.05

T = 1.80g

(1,529.05)(9.81) = 15,000 N/m

Reso = ?



16

P = ?

6 ÷ 1.00 = 4.511 kW

Potencia = 6 CV

U = 25 km/h

(4.511)(1000) = 4511 W

Friction = 0.2

d = 25000 m

T = 0.600

P = T / L

T = P · L

T = 4,511 × 0.600 = 16,209,000 J

T = F · d

P = F = T / d = (16,209,000) / (0.2) = 81,045,000

(17)

$$P = 250 \text{ kW}$$

$$M = 1000 \text{ kg}$$

$$V = ?$$

$$\frac{P}{M} = \frac{250 \text{ kW}}{1000 \text{ kg}} = 0.25 \text{ kW/kg}$$

$$250 \text{ kW} = \frac{1000 \text{ kg} \cdot V}{1}$$

$$250 \text{ kW} = 18 \text{ P} \div 1000 \text{ kg} = M$$

$$250 \text{ kW} = \frac{7 \text{ s}}{1}$$

$$P = 24907.5 \text{ kg} \cdot \text{mT/s}^2$$

$$V = \frac{P}{M} = \frac{\text{kg} \cdot \text{mT/s}^2}{\text{kg}}$$

$$V = 24.90 \text{ mT/s}$$

(18)

$$M = 80 \text{ k} \times 1000 \text{ kg} + 1000 \text{ kg} = 18000 \text{ kg}$$

$$d = 100 \text{ m}$$

$$17688 \text{ kg} = 5,297,400$$

$$T = 0 \text{ Min}$$

$$29,400$$

(19)

$$\begin{aligned}
 m &= 100 \text{ kg} \\
 d &= 10 \text{ m} \\
 p &= \pi
 \end{aligned}$$

$$\frac{3 \cdot 10^4}{5} = h \cdot T$$

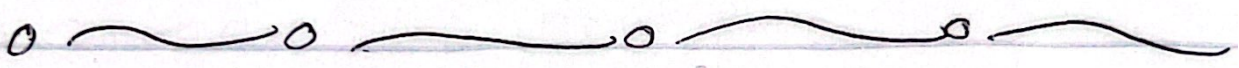
$$P = m \cdot c \cdot d$$

$$T \cdot S = \frac{P}{T}$$

$$T = 2 \text{ min} = 120 \text{ s}$$

$$g = 9.81$$

$$562.901$$



(20)

$$\begin{aligned}
 m &= 100 \text{ kg} \\
 d &= 10 \text{ m}
 \end{aligned}$$

$$5 \cdot 10^4 \cdot 212.65 \text{ W}$$

$$0.212 \text{ km} \cdot 10^7$$

$$T = 2 \text{ min} = 120 \text{ s}$$

$$g = 9.81$$

$$0.2810 \text{ V}$$



(21)

$$\begin{aligned}
 m &= 2 \text{ kg} \\
 g &= 10 \text{ m/s}^2 \\
 h &= 0 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 \bar{c}_p &= 0.1 \text{ g/h} \\
 \bar{c}_p &= (2 \text{ kg}) (10) (0 \text{ m}) \\
 \bar{c}_p &= 0 \text{ J}
 \end{aligned}$$

$$e \cdot h \cdot T = F \cdot d$$

22

$$F \cdot d = \frac{Mv^2}{2}$$

$$M = 200 \text{ kg}$$

$$v = 10 \text{ m/s}$$

$$F = 500 \text{ N}$$

$$d = \frac{Mv^2}{2F}$$

$$d = \frac{(200)(10)^2}{2(500)}$$

$$d = 10 \text{ m}$$

$$E_c = \frac{M \cdot v^2}{2}$$

$$E_c = \frac{(200)(10)^2}{2}$$

$$E_c = 10,000 \text{ J}$$



$$F = 12.5 \text{ kN}$$

$$v = 600 \text{ cm} = 6 \text{ m/s}$$

$$M = 250 \text{ kg}$$

$$F \cdot d = \frac{Mv^2}{2}$$

$$F = (12.5)(9.8)$$

$$F = 122.5 \text{ N}$$

$$v = \sqrt{\frac{2(F \cdot d)}{M}}$$

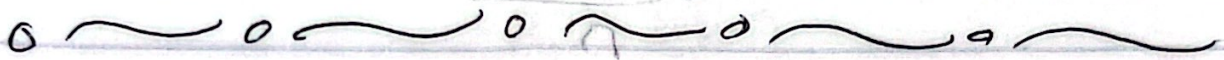
$$v = 2.4 \text{ m/s}$$

84

$$v = 500 \text{ m/s} \quad E_c = \frac{\rho \cdot v^2}{2}$$
$$\rho = 6 \text{ g/m}^3$$
$$E_c = ?$$

$$E_c = \frac{(6 \text{ g/m}^3)(500 \text{ m/s})^2}{2}$$

$$E_c = 750,000 \text{ J}$$



85

$$P = 0.6 \text{ W}$$

$$v = 10 \text{ m/s}$$

$$\rho = 9.81 \text{ g/cm}^3$$

$$\rho = \frac{P}{v^2}$$

$$\rho = \frac{0.6}{9.81} = 0.06$$

$$E_c = \frac{(0.06)(10)^2}{2}$$

$$E_c = 0.42 \text{ J}$$

22

$$\mu = 5 \text{ kg}$$

$$E_c = 2 \text{ kg}$$

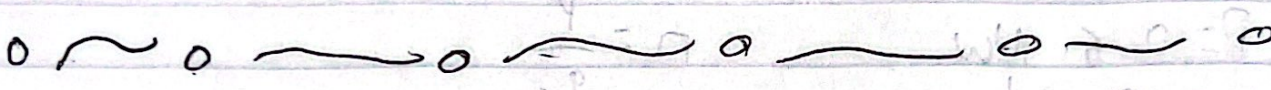
$$E_c = \frac{\mu \cdot v^2}{2}$$

$$2 E_c = \mu \cdot v^2$$

$$\frac{2 E_c}{\mu} = v^2$$

$$v = \sqrt{\frac{2 E_c}{\mu}}$$

$$v = 9.48$$



23

$$\mu = 3 \text{ kg}$$

$$E_p = \mu \cdot G \cdot d = 78.57 \text{ J}$$

$$d = 0.5 \text{ m}$$

$$G = 9.81$$

(28)

$$U = \rho M g$$

$$E_p = \rho \cdot g \cdot h$$

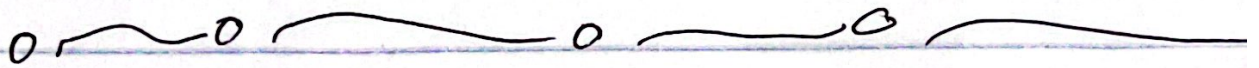
$$g = 9.81 \text{ m/s}^2$$

$$E_p = 81$$

$$h = \frac{E_p}{(\rho \cdot g)}$$

$$h = \frac{80.1}{(1000)(9.81 \text{ m/s}^2)}$$

$$h = 1.7591 \text{ m}$$



(29)

$$m = 5 \text{ kg}$$

$$h = 10 \text{ m}$$

$$E_p = ?$$

$$E_c = ?$$

$$g = 9.81 \text{ m/s}^2$$

$$E_p = m \cdot g \cdot h$$

$$E_p = (5 \text{ kg})(9.81 \text{ m/s}^2)(10 \text{ m})$$

$$E_p = 490.5 \text{ J}$$

$$v_p^2 = 2 \cdot g \cdot h$$

$$v_f = \sqrt{2 \cdot g \cdot h}$$

$$v_f = \sqrt{(2)(9.81 \text{ m/s}^2)(10 \text{ m})}$$

$$v_f = 14.014 \text{ m/s}$$

$$E_c = 490.98 \text{ J}$$

$$E_c = \frac{1}{2} \cdot m \cdot v^2$$

$$E_c = (5 \text{ kg})(14.014 \text{ m/s})^2$$